

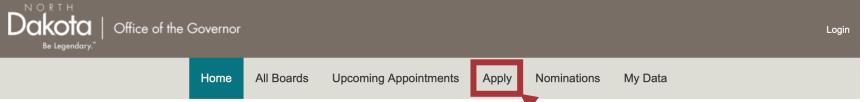




OUTLINE

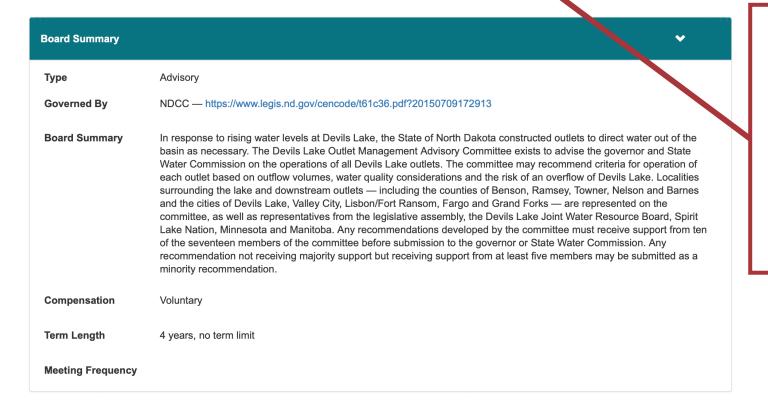
- Introduction & Membership Term Review
 - Andrea Travnicek, Director
- Devils Lake Basin Review
 - Jon Kelsch, DWR Director of Water Development
- National Weather Service Situational Update
 - Amanda Lee, NWS Grand Forks Service Hydrologist
- 2021 Operational Summary
 - Jon Kelsch, DWR Director of Water Development
- 2021 Water Quality Review
 - -NDDEQ
- Outlook For 2022 Outlet Operations
- Status By Committee Members
- Final Comments

DLOMAC MEMBERSHIP TERMS



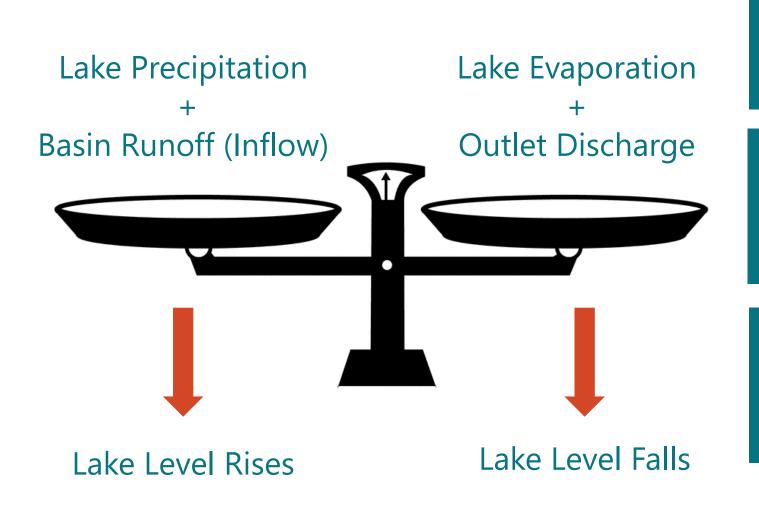
Devils Lake Outlet Management Advisory Committee

< Return



Members With Upcoming
Term Expirations Are
Encouraged To Apply For
Reappointment Through The
Board Application Portal

DEVILS LAKE BASIN WATER BALANCE

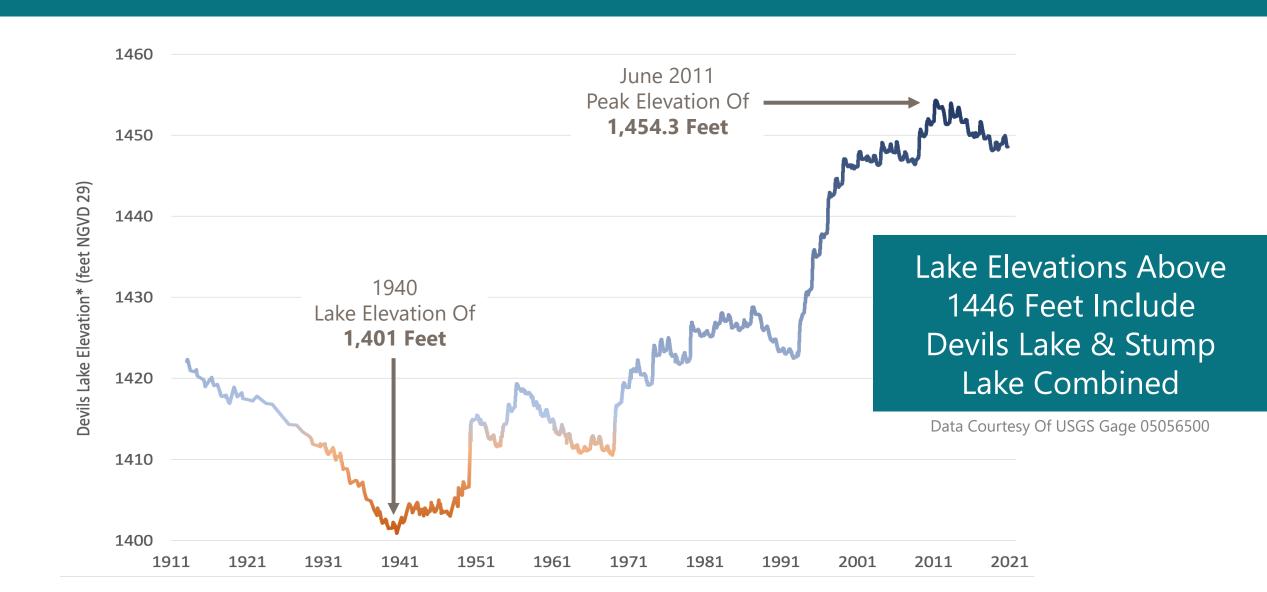


Average Annual Estimates (2010-2020)

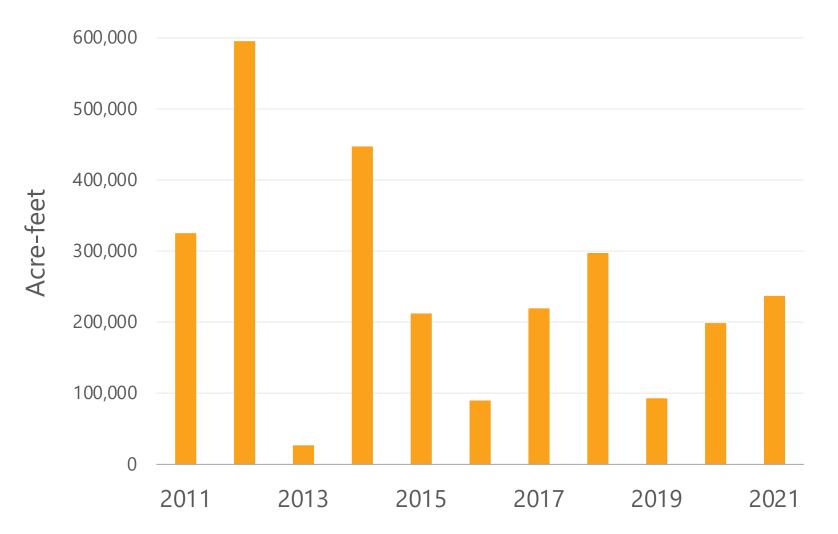
Precipitation = 20.4 Inches Inflow = 249,300 Acre-Feet (17.4 Inches On Average)

Evaporation = 30.3 Inches Outlet Discharge = 108,260 Ac-Ft (8.0 Inches On Average)

DEVILS LAKE PERIOD OF RECORD ELEVATION



DEVILS LAKE ESTIMATED INFLOW

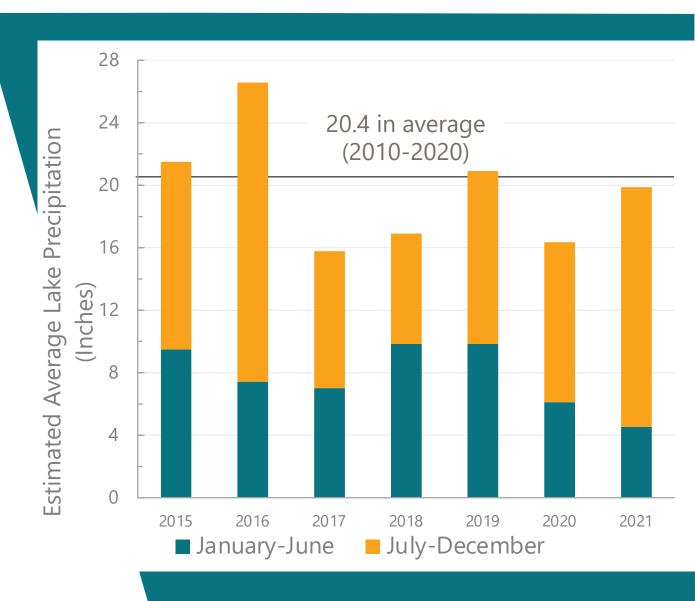


- Inflow Is Highly Variable & Influenced By Previous Years
- Average Inflow From 2010-2020 Has Been Approximately 249,300 Ac-Ft
- 2021 Estimated Inflow
 Was 229,000 Acre-Feet

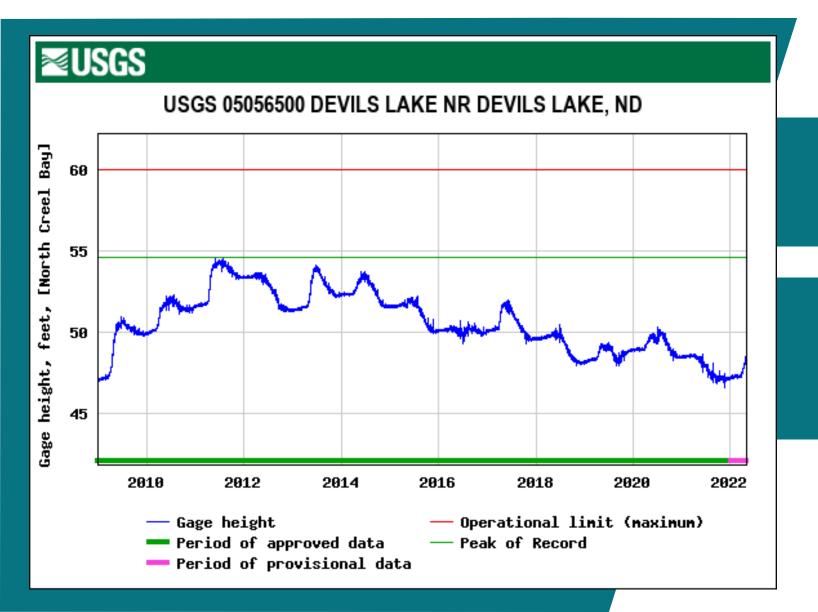
DEVILS LAKE PRECIPITATION (2015-2021)

2021 Average Lake Precipitation Estimated To Be 17.67 Inches

Drier Conditions In Four Of The Five Past Years Have Contributed To Lower Lake Elevations



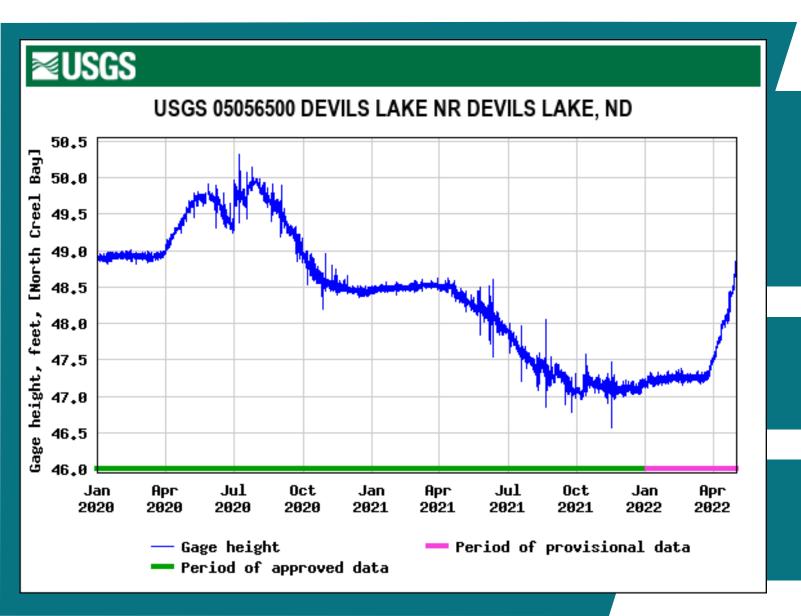
LAKE ELEVATION 2009 - PRESENT



Devils Lake Peaked At 1454.3 Feet In 2011

The Lake Has Shown A
Steady Decline Over the Last
10 Years, approx. 7 Feet

LAKE ELEVATION 2020 - PRESENT



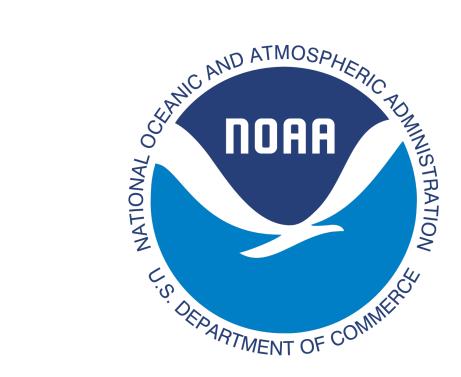
Historically Dry
Conditions Throughout
2021 Caused A Significant
Drop In Lake Levels

Devils Lake Fell to 1447 Feet In Early October of 2021

In 2022, Lake Rise & Inflow Have Been Increased By April Snowfall

NATIONAL WEATHER SERVICE UPDATE

Amanda Lee NWS Grand Forks

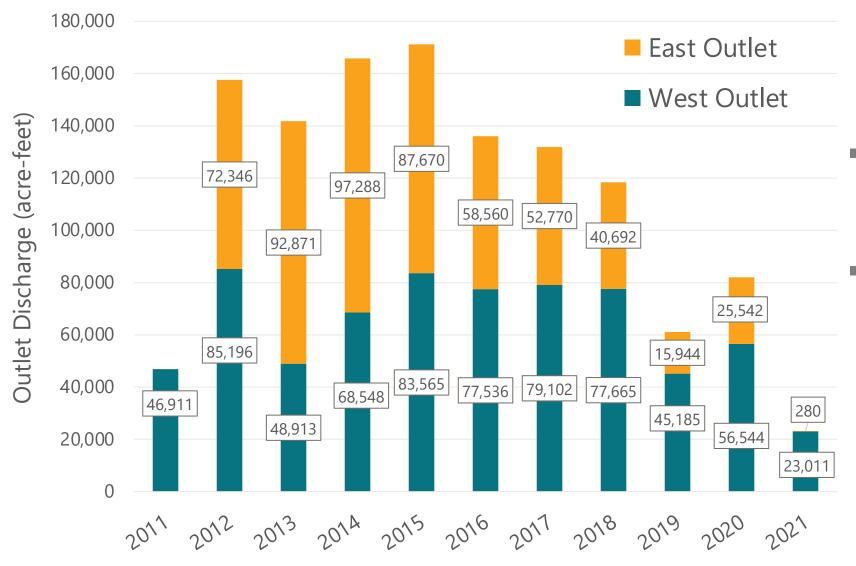




2021 OPERATIONAL SUMMARY

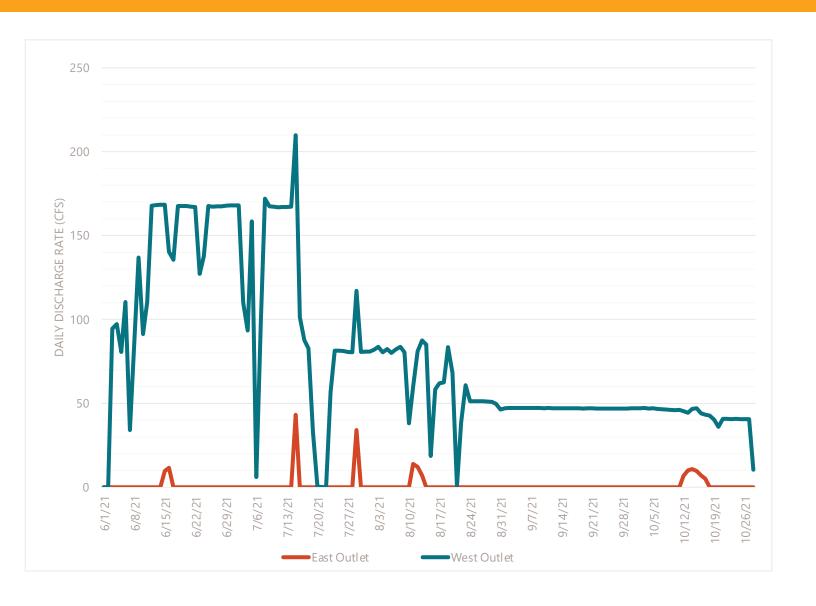


DEVILS LAKE OUTLET DISCHARGE 2010 – 2021



- 2020 Total Discharge
 Was 82,086 Acre-Feet
- Outlets Discharged For 124 Days In 2020
- The Outlets Have Combined To Discharge Over 1.3M Ac-Ft
- Estimated LakeElevation is 5.5 feetHigher Without Outlets

2021 OUTLET DISCHARGE RATE

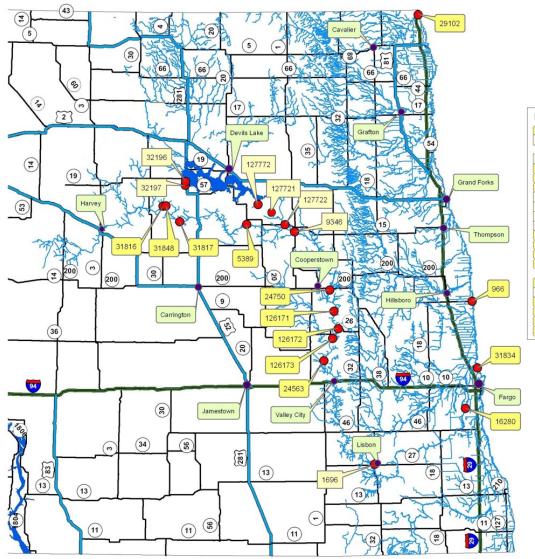


- 2021 Operation Window
 June 1- October 28
- East Outlet Was Shut
 Down Due To Water
 Quality and Lake Level
- West Outlet Discharge
 Was 98% Of The Total

2021 WATER QUALITY REVIEW



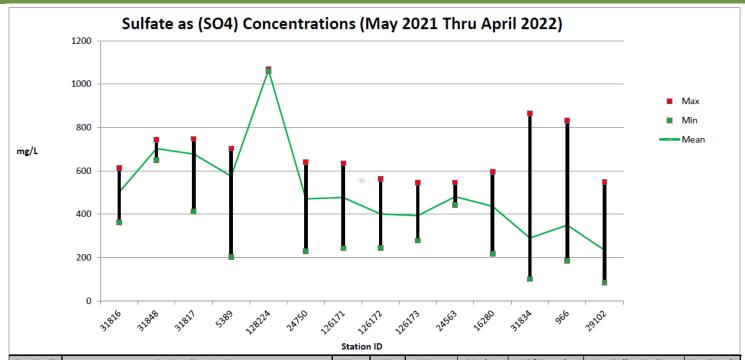
DEVILS LAKE OUTLET MONITORING SITES





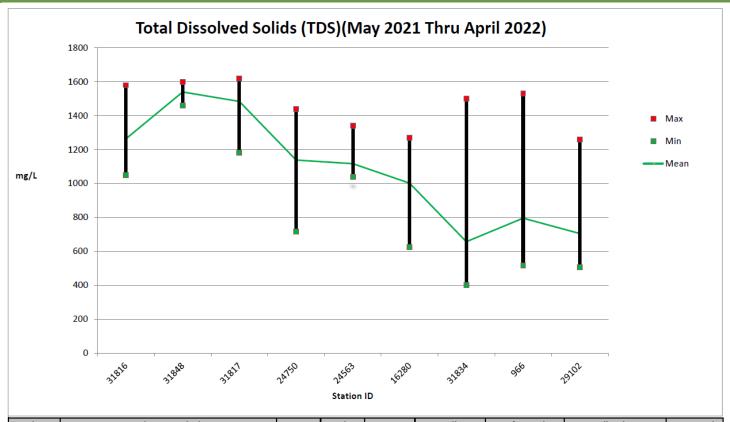
DEVILS	LAKE OUTLET MONITORING SITES					
381816	Sheyenne River Near Flora					
32196	Devils Lake West Bay - South Of					
Minnewauken						
32197	Round Lake Portion Of Devils Lake					
31848	Devils Lake State Outlet					
31817	Sheyenne River Near Bremen					
5389	Sheyenne River Near Warwick					
127772	East Devils Lake - East End Outlet Intake					
127721	Devils Lake, East End Outlet					
127722	Tolna Coulee at Tolna Dam					
9346	Sheyenne River South of Pekin					
24750	Sheyenne River Near Cooperstown					
126171	Lake Ashtabula East Of Hannaford					
126172	Lake Ashtabula At Sibley Crossing Bridge					
126173	Lake Ashtabula Downstream Location At					
	Ashtabula Crossing					
24563	Sheyenne River Below Baldhill Dam					
1696	Sheyenne River, North Side of Lisbon, ND					
16280	Sheyenne River Near Horace					
31834	Red River Near Harwood					
966	Red River Near Halstad Mn					
29102	Red River At Pembina					

SULFATE MONITORING



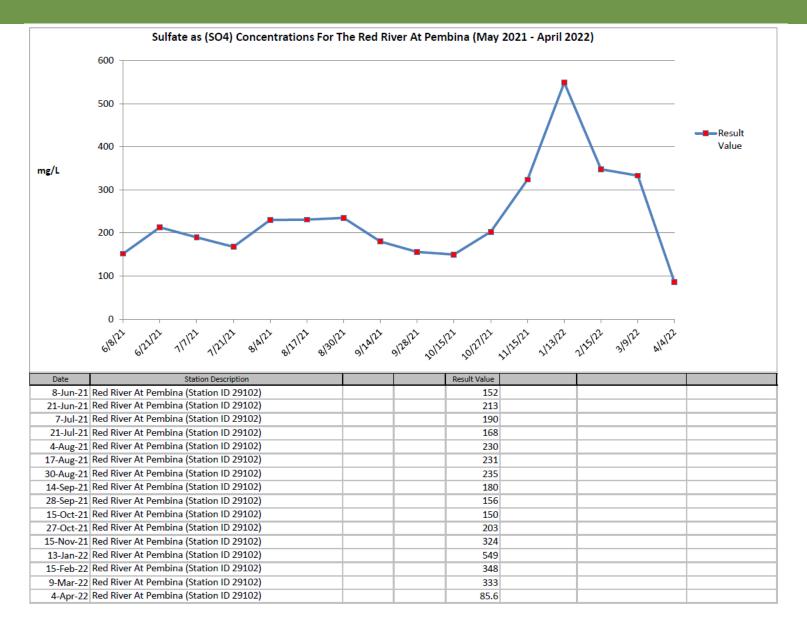
StationID	Station Description	Max	Min	Mean	Median	# Of Samples	LastCollectionDate	LastResult
31816	Sheyenne River Near Flora	613	362	501.19	504.5	42	25-Oct-21	432
31848	Devils Lake State Outlet	744	648	702.00	703	37	25-Oct-21	716
31817	Sheyenne River Near Bremen	748	412	677.48	697	42	25-Oct-21	646
5389	Sheyenne River Near Warwick	704	203	575.05	618	21	25-Oct-21	532
128224	East End Outlet at County Road 4	1070	1060	1065.00	1065	2	29-Jul-21	1060
24750	Sheyenne River Near Cooperstown	641	230	470.85	508.5	26	15-Mar-22	254
126171	Lake Ashtabula East Of Hannaford	636	243	476.83	510.5	12	20-Oct-21	512
126172	Lake Ashtabula At Sibley Crossing Bridge	564	244	401.25	407.5	12	20-Oct-21	536
126173	Lake Ashtabula Downstream Location At Ashtabula	545	278	393.75	389	12	20-Oct-21	545
24563	Sheyenne River Below Baldhill Dam	547	442	481.04	472	27	15-Mar-22	528
16280	Sheyenne River Near Horace	597	218	436.56	434	27	15-Mar-22	506
31834	Red River Near Harwood	865	101	290.06	215	16	15-Mar-22	649
966	Red River Near Halstad Mn	833	184	349.50	283	16	15-Mar-22	597
29102	Red River At Pembina	549	85.6	234.23	208	16	04-Apr-22	85.6

TOTAL DISSOLVED SOLIDS MONITORING

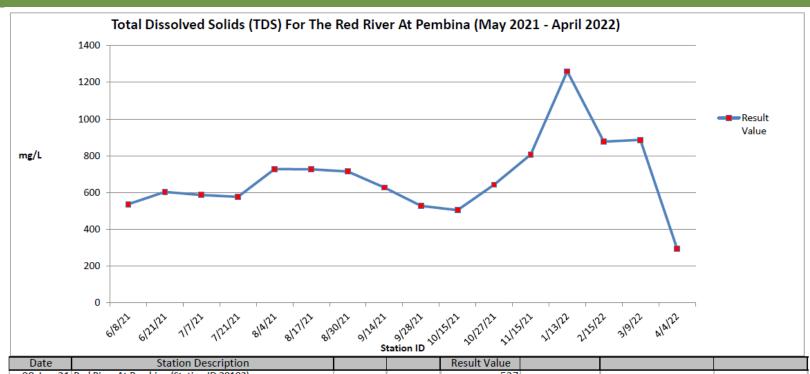


StationID	Station Description	Max	Min	Mean	Median	# Of Samples	LastCollectionDate	LastResult
31816	Sheyenne River Near Flora	1580	1050	1263.18	1245	22	25-Oct-21	1050
31848	Devils Lake State Outlet	1600	1460	1539.44	1545	18	25-Oct-21	1570
31817	Sheyenne River Near Bremen	1620	1180	1483.64	1515	22	25-Oct-21	1400
24750	Sheyenne River Near Cooperstown	1440	718	1138.48	1170	25	09-Feb-22	826
24563	Sheyenne River Below Baldhill Dam	1340	1040	1116.92	1085	26	09-Feb-22	1190
16280	Sheyenne River Near Horace	1270	625	1001.77	997.5	26	09-Feb-22	1170
31834	Red River Near Harwood	1500	400	656.87	570	15	09-Feb-22	870
966	Red River Near Halstad Mn	1530	517	795.53	727	15	09-Feb-22	911
29102	Red River At Pembina	1260	505	705.27	643	15	09-Mar-22	856

SULFATE AT PEMBINA

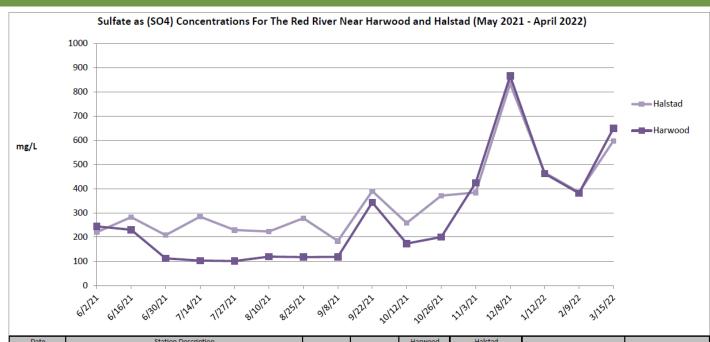


TOTAL DISSOLVED SOLIDS AT PEMBINA



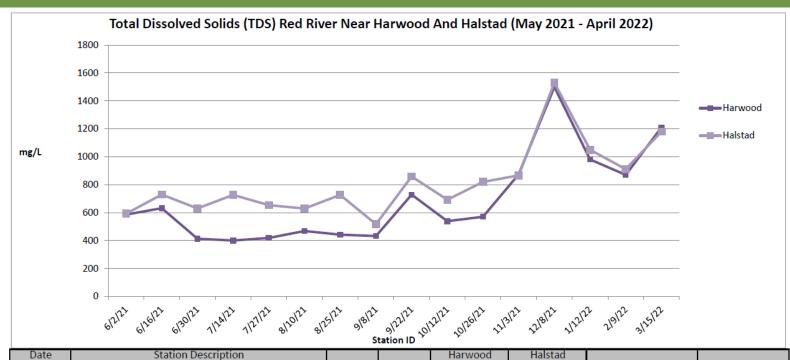
Date	Station Description	Result Value		
08-Jun-21	Red River At Pembina (Station ID 29102)	537		
	Red River At Pembina (Station ID 29102)	604		
07-Jul-21	Red River At Pembina (Station ID 29102)	587		
21-Jul-21	Red River At Pembina (Station ID 29102)	577		
04-Aug-21	Red River At Pembina (Station ID 29102)	728		
17-Aug-21	Red River At Pembina (Station ID 29102)	727		
30-Aug-21	Red River At Pembina (Station ID 29102)	715		
	Red River At Pembina (Station ID 29102)	628		
	Red River At Pembina (Station ID 29102)	528		
15-Oct-21	Red River At Pembina (Station ID 29102)	505		
	Red River At Pembina (Station ID 29102)	643		
15-Nov-21	Red River At Pembina (Station ID 29102)	807		
	Red River At Pembina (Station ID 29102)	1260		
15-Feb-22	Red River At Pembina (Station ID 29102)	877		
	Red River At Pembina (Station ID 29102)	887		
4-Apr-22	Red River At Pembina (Station ID 29102)	296		

SULFATE MONITORING NEAR HARWOOD AND HALSTAD

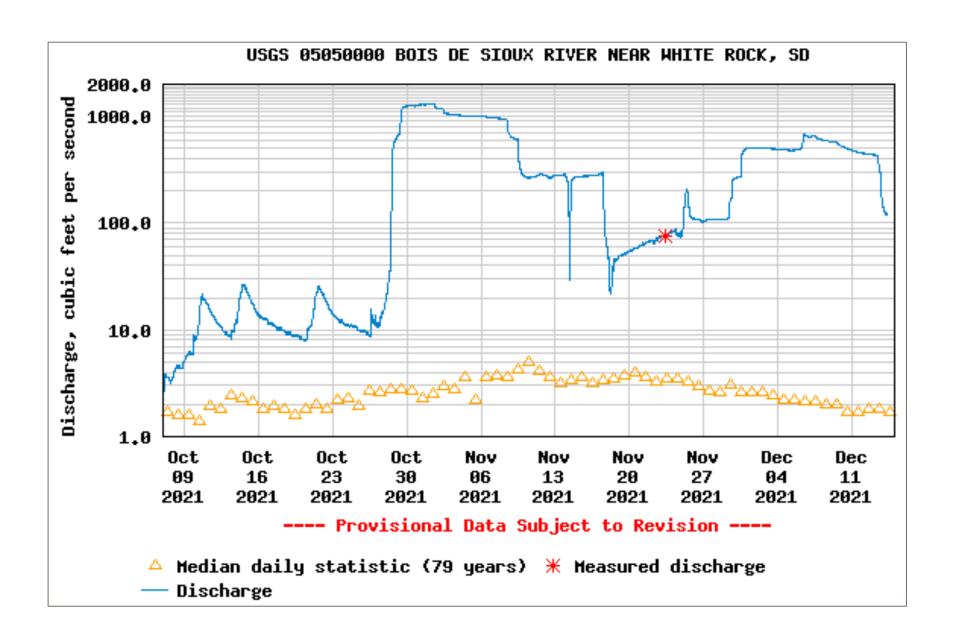


Station Description			Harwood	Halstad		
Red River Harwood And Halstad			244	220		
Red River Harwood And Halstad			230	282		
Red River Harwood And Halstad			112	208		
Red River Harwood And Halstad			103	284		
Red River Harwood And Halstad			101	229		
Red River Harwood And Halstad			119	223		
Red River Harwood And Halstad			117	278		
Red River Harwood And Halstad			118	184		
Red River Harwood And Halstad			343	390		
Red River Harwood And Halstad			173	258		
Red River Harwood And Halstad			200	371		
Red River Harwood And Halstad			424	384		
Red River Harwood And Halstad			865	833		
Red River Harwood And Halstad			462	466		
Red River Harwood And Halstad			381	385		
Red River Harwood And Halstad			649	597		
	Red River Harwood And Halstad	Red River Harwood And Halstad	Red River Harwood And Halstad	Red River Harwood And Halstad 244 Red River Harwood And Halstad 230 Red River Harwood And Halstad 112 Red River Harwood And Halstad 103 Red River Harwood And Halstad 119 Red River Harwood And Halstad 117 Red River Harwood And Halstad 118 Red River Harwood And Halstad 343 Red River Harwood And Halstad 200 Red River Harwood And Halstad 200 Red River Harwood And Halstad 424 Red River Harwood And Halstad 465 Red River Harwood And Halstad 865 Red River Harwood And Halstad 381	Red River Harwood And Halstad 244 220 Red River Harwood And Halstad 230 282 Red River Harwood And Halstad 112 208 Red River Harwood And Halstad 103 284 Red River Harwood And Halstad 101 229 Red River Harwood And Halstad 119 223 Red River Harwood And Halstad 117 278 Red River Harwood And Halstad 343 390 Red River Harwood And Halstad 173 258 Red River Harwood And Halstad 200 371 Red River Harwood And Halstad 424 384 Red River Harwood And Halstad 465 833 Red River Harwood And Halstad 462 466 Red River Harwood And Halstad 381 385	Red River Harwood And Halstad 244 220 Red River Harwood And Halstad 230 282 Red River Harwood And Halstad 112 208 Red River Harwood And Halstad 103 284 Red River Harwood And Halstad 101 229 Red River Harwood And Halstad 119 223 Red River Harwood And Halstad 117 278 Red River Harwood And Halstad 343 390 Red River Harwood And Halstad 173 258 Red River Harwood And Halstad 200 371 Red River Harwood And Halstad 424 384 Red River Harwood And Halstad 465 833 Red River Harwood And Halstad 462 466 Red River Harwood And Halstad 381 385

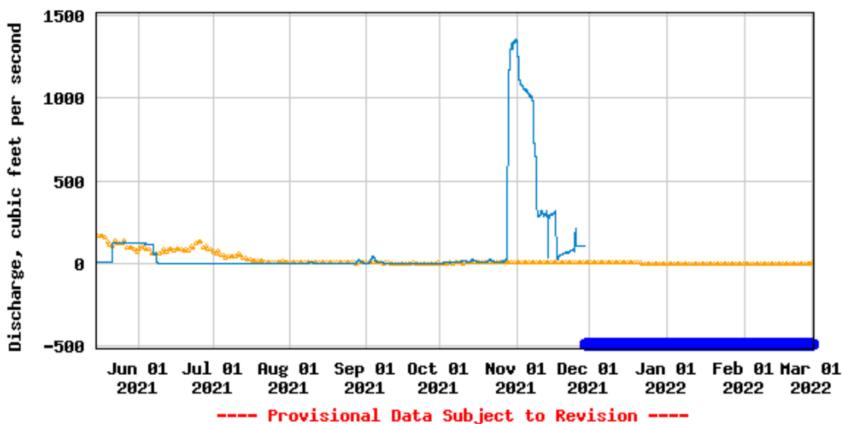
TOTAL DISSOLVED SOLIDS NEAR HARWOOD AND HALSTAD



Date	Station Description	Harwood	Halstad	
	Red River Harwood And Halstad	586	592	
	Red River Harwood And Halstad	632	729	
30-Jun-21	Red River Harwood And Halstad	413	630	
14-Jul-21	Red River Harwood And Halstad	400	727	
27-Jul-21	Red River Harwood And Halstad	418	653	
10-Aug-21	Red River Harwood And Halstad	468	629	
25-Aug-21	Red River Harwood And Halstad	442	727	
08-Sep-21	Red River Harwood And Halstad	432	517	
22-Sep-21	Red River Harwood And Halstad	728	859	
12-Oct-21	Red River Harwood And Halstad	539	692	
26-Oct-21	Red River Harwood And Halstad	570	820	
	Red River Harwood And Halstad	874	867	
08-Dec-21	Red River Harwood And Halstad	1500	1530	
12-Jan-22	Red River Harwood And Halstad	981	1050	
09-Feb-22	Red River Harwood And Halstad	870	911	
15-Mar-22	Red River Harwood And Halstad	1210	1180	



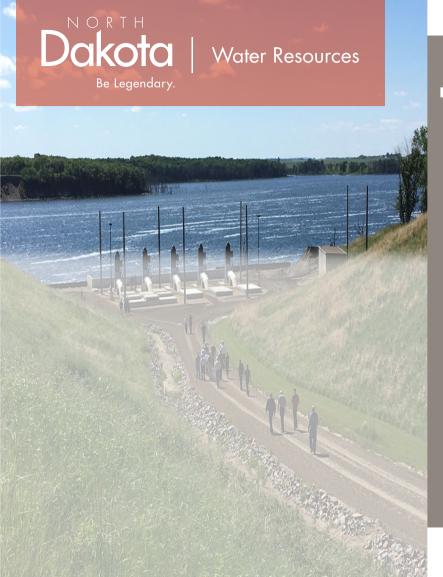
USGS 05050000 BOIS DE SIOUX RIVER NEAR WHITE ROCK, SD



- Trovisional baca sabject to nevision
- Median daily statistic (79 years)
- Discharge
- Value is affected by ice at the measurement site.

OUTLOOK FOR 2022 OUTLET OPERATIONS





THANK YOU

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